

A Picture is Worth a Thousand Hearings



River Channel

Floodplain

Jeffres et al. 2008

What's New on Floodplains and Habitat

- Central Valley Flood Protection Plan and associated appendices and projects.
- BDCP Studies Regarding Floodplain Habitat

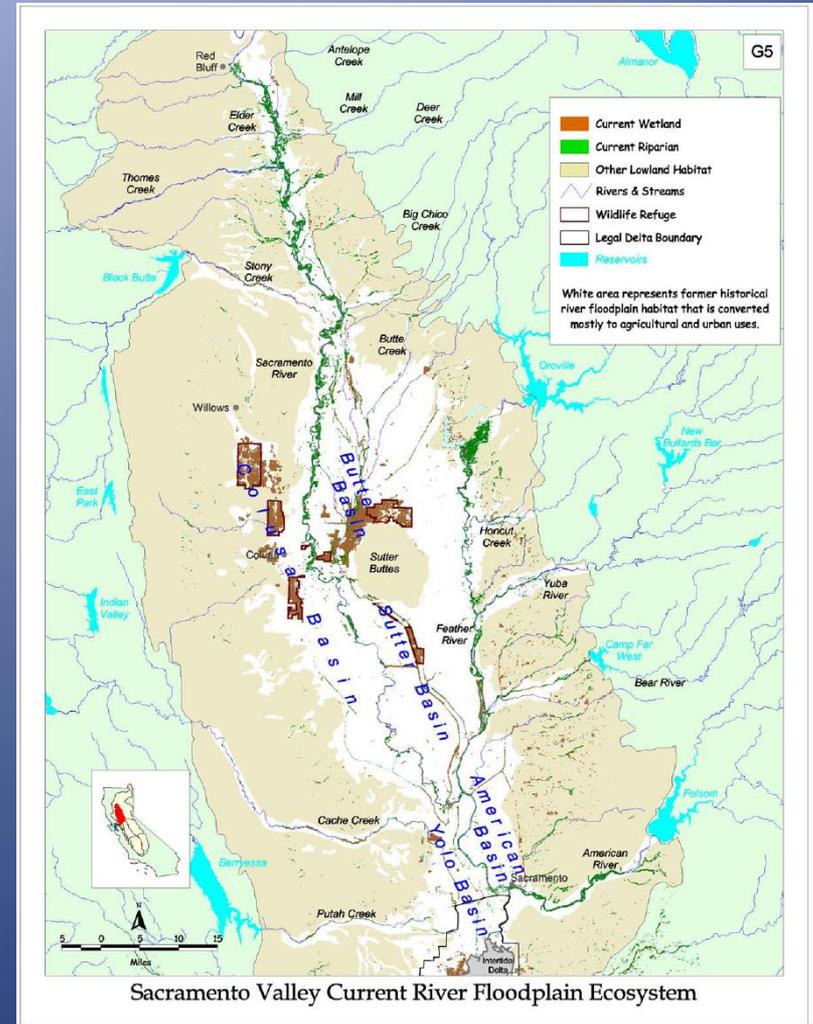
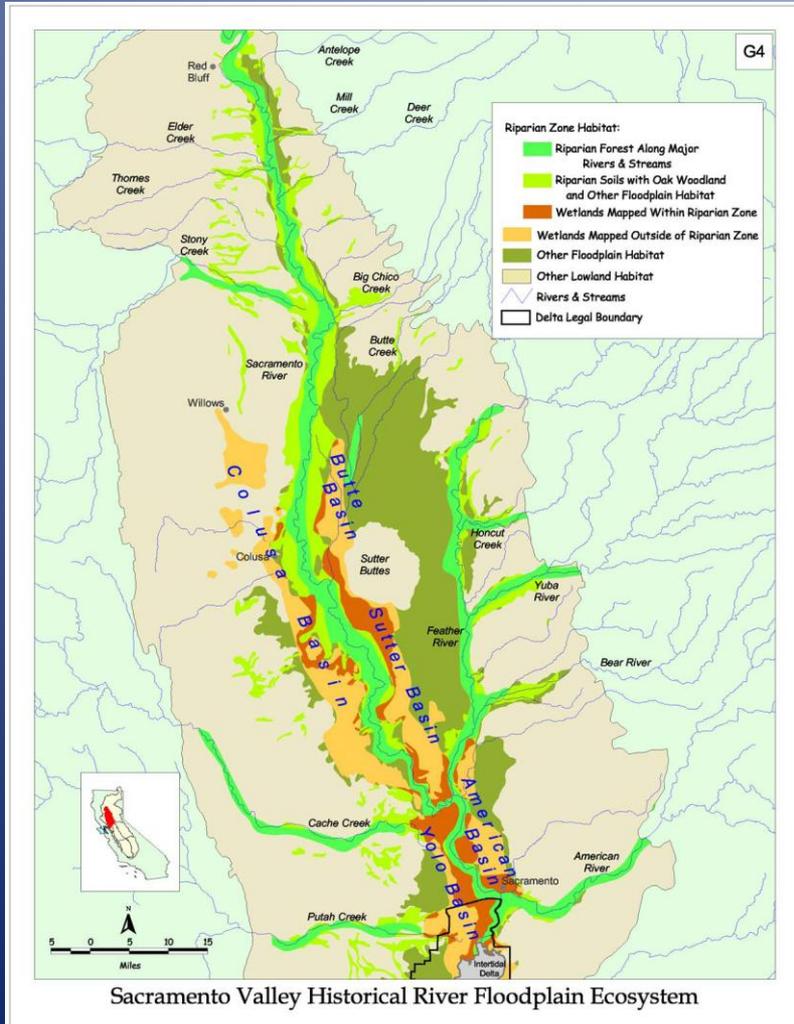
Recommendations regarding question number two regarding scientific uncertainty

1. Increase area of frequently inundated floodplain.
2. Research on foodweb and turbidity benefits.
3. Precautionary principle.
4. Decision making criteria.

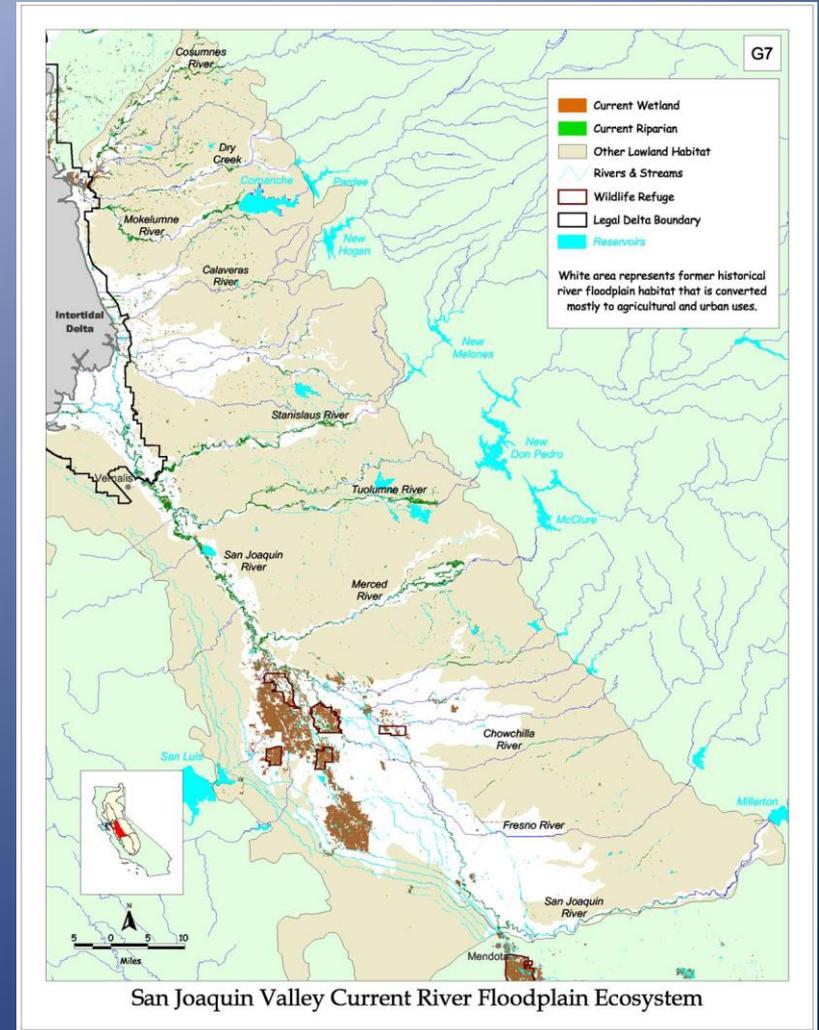
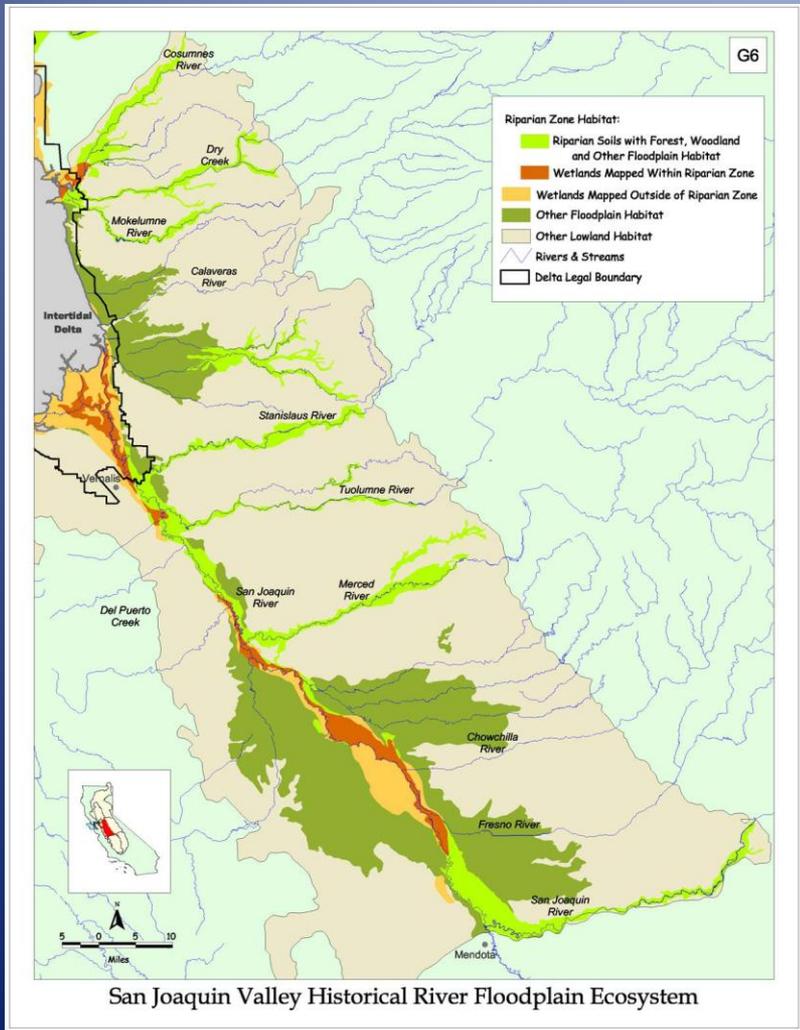
Decision making criteria.

- Magnitude of impact
- Breadth of impact
- Certainty of benefit
- Risk of undesirable and irreversible ecological impacts
- Reversability: measures that are reversible are relatively low risk.
- Learning richness
- Time required to demonstrate outcomes

Sacramento Valley Historic and Present



San Joaquin Valley Historic and Present



Upstream Floodplains and Rearing Habitat vs. Downstream Floodplain in Delta and Yolo

- With some exceptions, the largest hydrologic and topographic potential for floodplain habitat is in lower end of the Sacramento and San Joaquin.
- Upstream rearing habitat in the form of side channels and other channel complexity features is very important.

Floodplain Inundation Potential Maps for the San Joaquin and Tributaries

Underlying analysis based on existing, regulated hydrology. A change in hydrology to increase reservoir releases would significantly increase inundation frequency and maps of floodplain restoration opportunities.

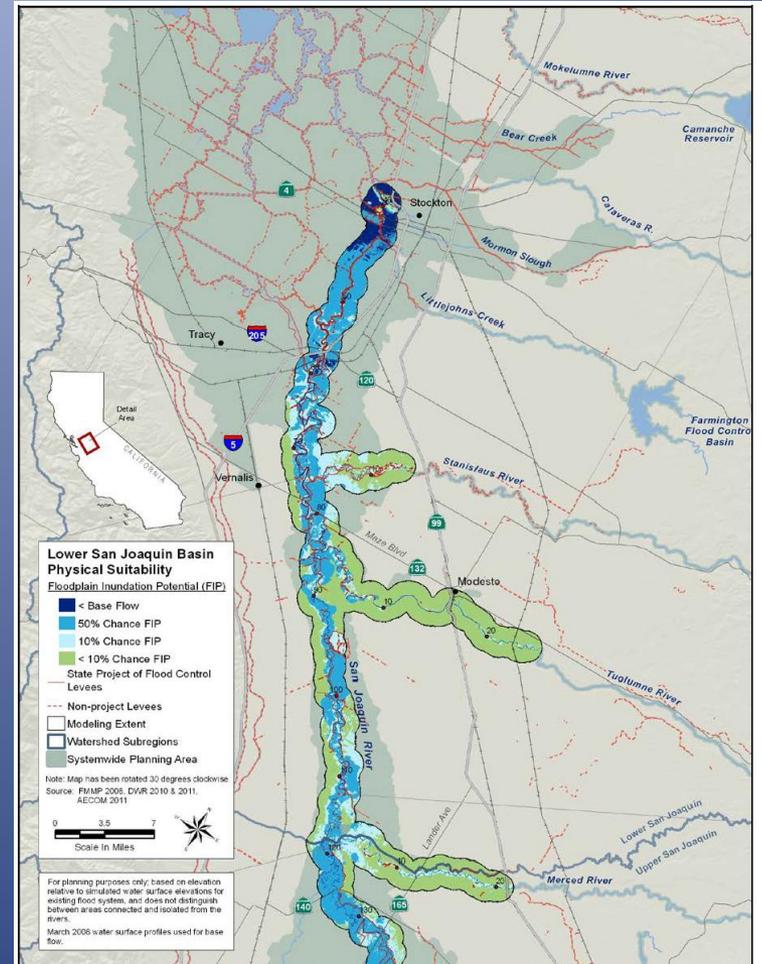


Figure 3-22. Floodplain Inundation Potential of River Corridors in the Lower San Joaquin Basin

Floodplain Inundation Potential Maps for Sacramento Valley from CVFPP

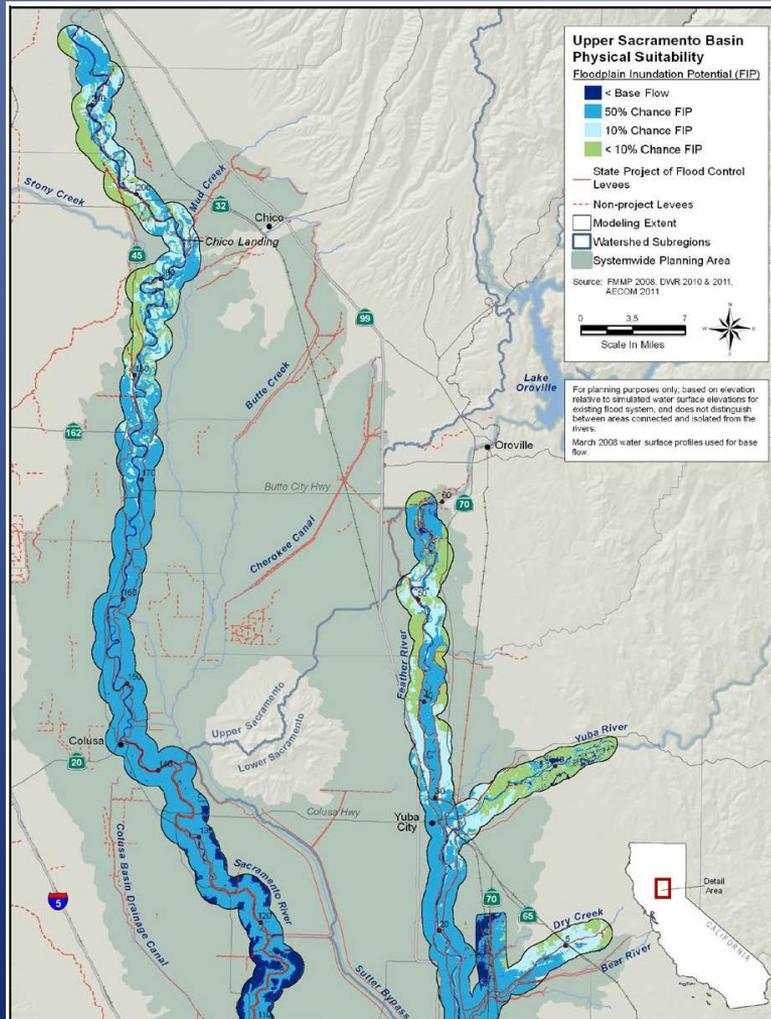


Figure 3-2. Floodplain Inundation Potential of Major River Corridors in the Upper Sacramento Basin

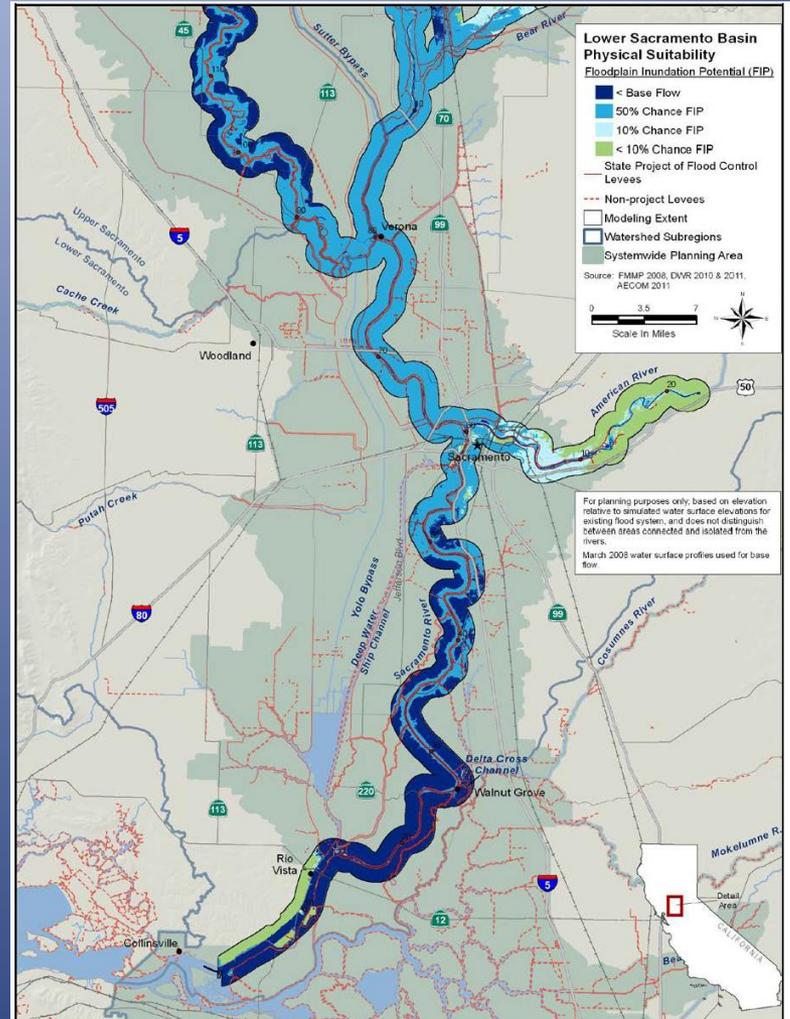
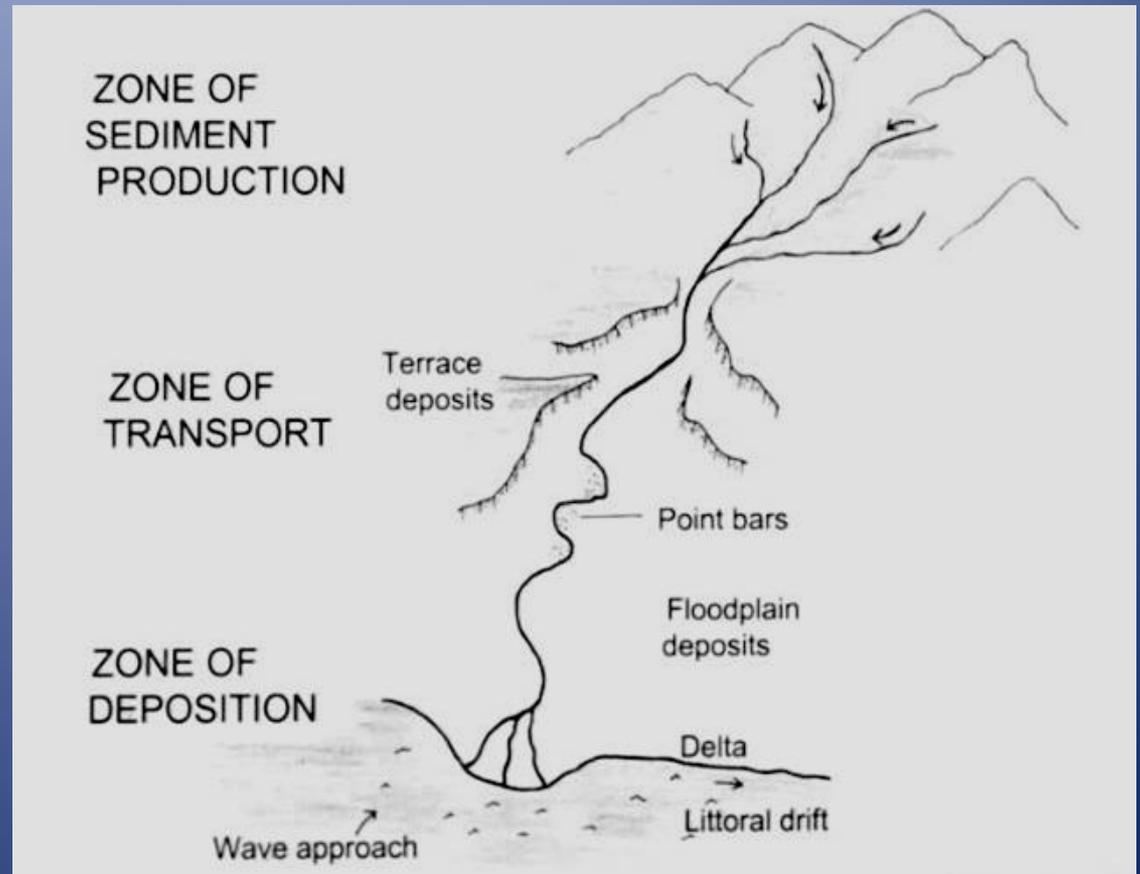


Figure 3-12. Floodplain Inundation Potential of Major River Corridors in the Lower Sacramento Basin

Delta and Yolo Floodplains greatest opportunities for floodplain habitat.

1. Low topography.
2. Access to multiple runs of juvenile fish from different rivers.
3. Connectivity to the Delta (food supply, access)



Two Ways to Increase Floodplain Inundation

1. Increase upstream reservoir releases
2. Physical modification to floodways, levees, or floodplains designed to increase area of inundation at a given discharge.

Both are necessary to increase both the frequency and area of inundation.

Yolo Bypass and Fremont Weir

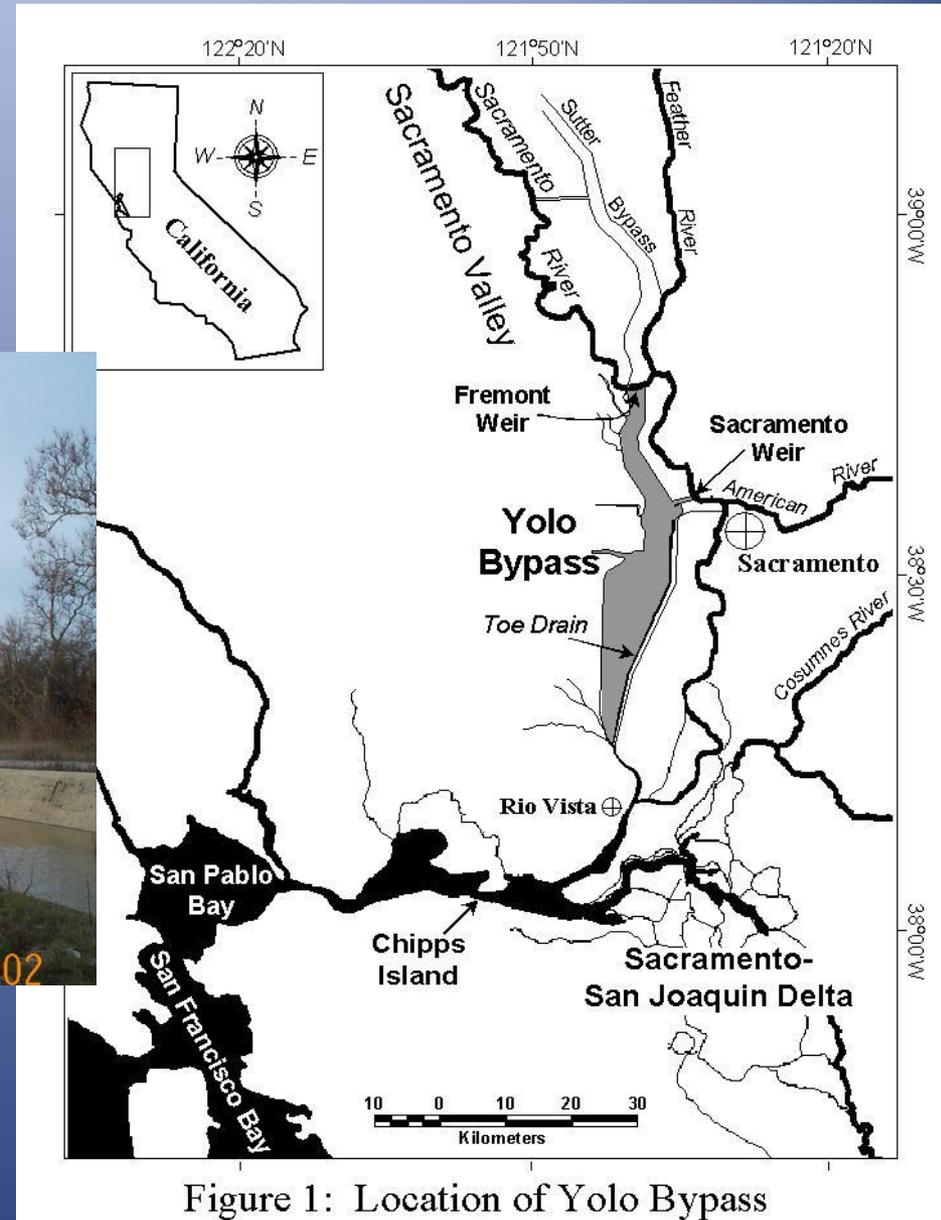
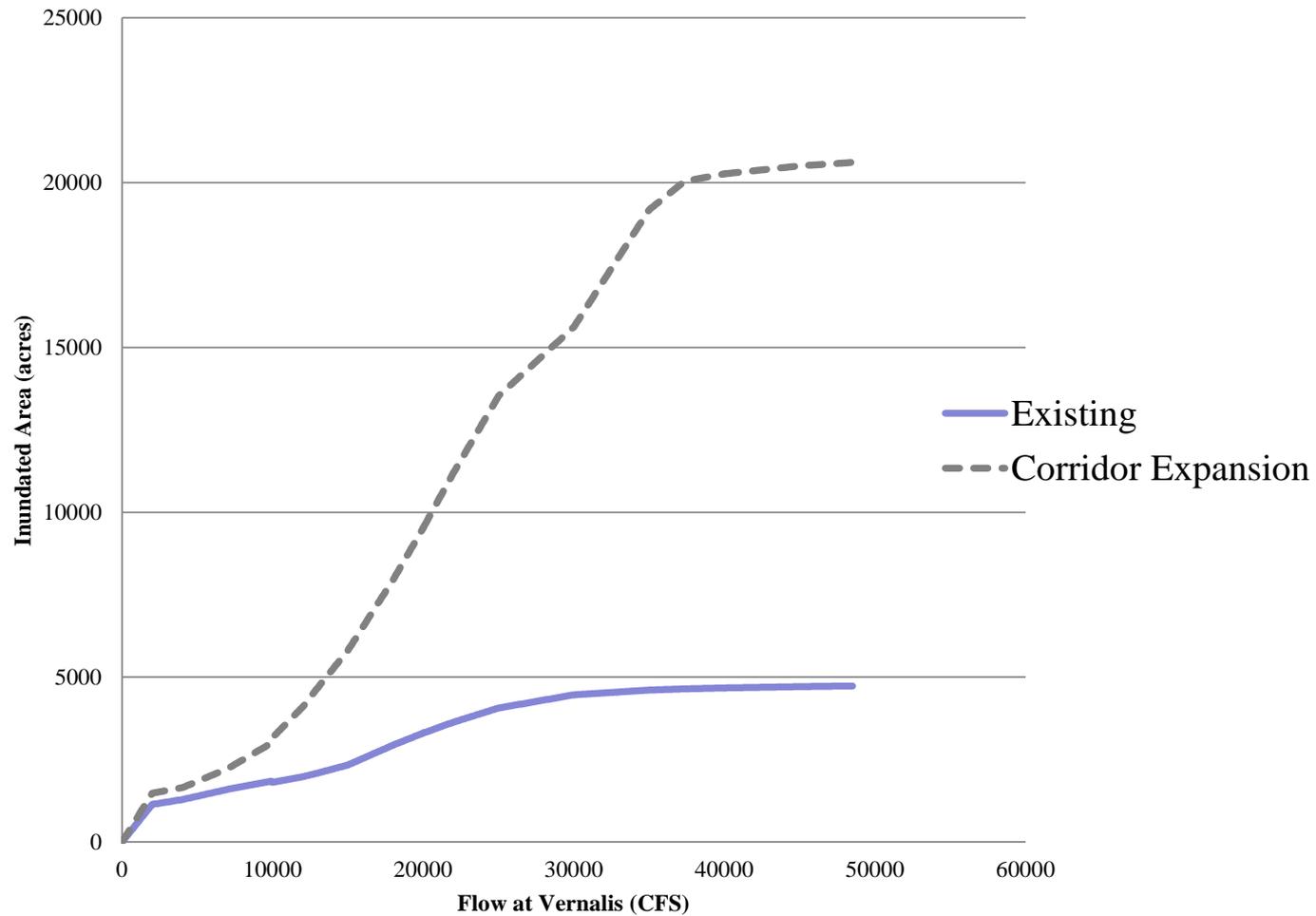


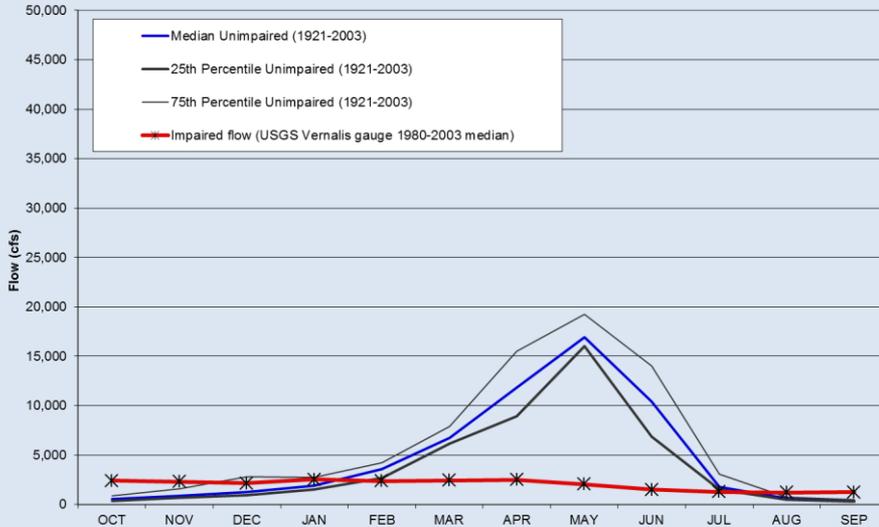
Figure 1: Location of Yolo Bypass

Fremont Weir

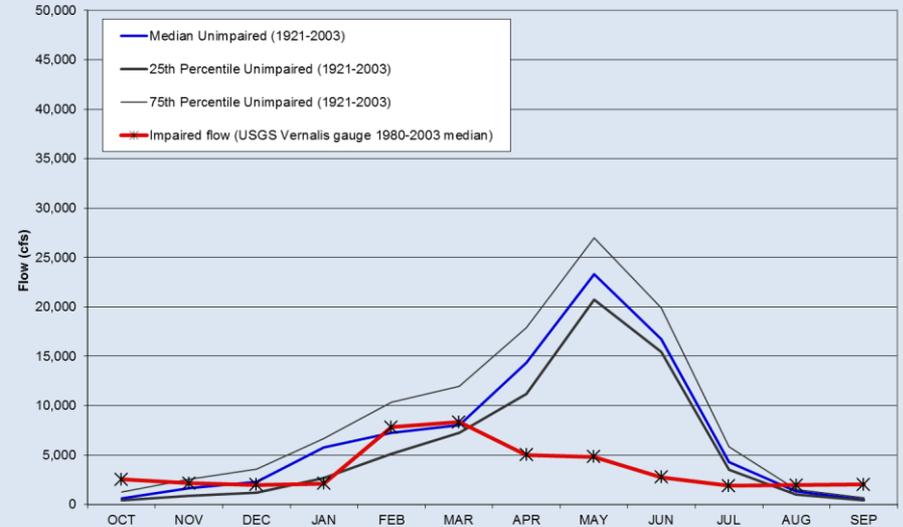
Setting-back levees is a physical solution to increase inundated floodplain



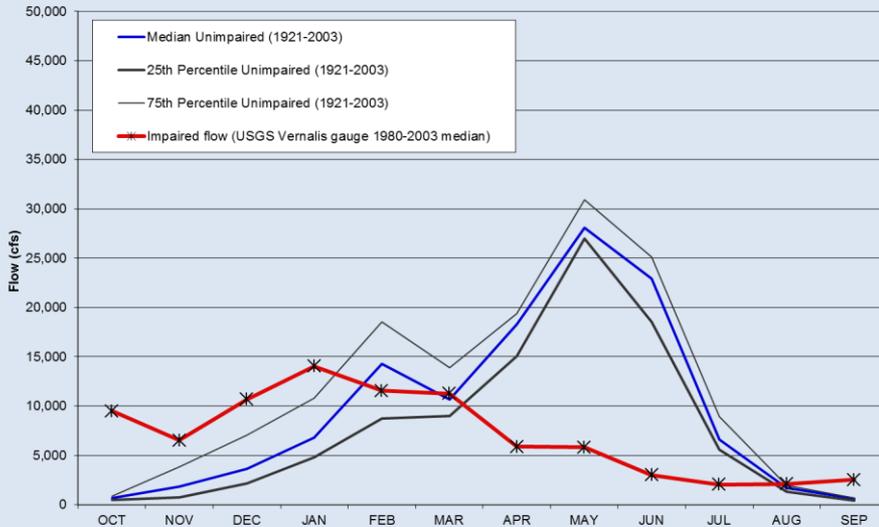
Lower San Joaquin River Average Monthly Flows
20-40th Percentile Water Year Type



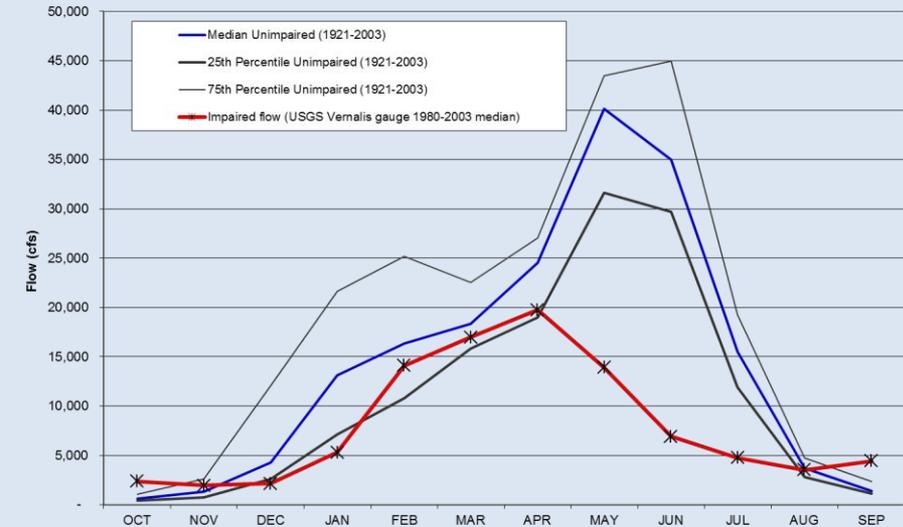
Lower San Joaquin River Average Monthly Flows
40-60th Percentile Water Year Type



Lower San Joaquin River Average Monthly Flows
60-80th Percentile Water Year Type

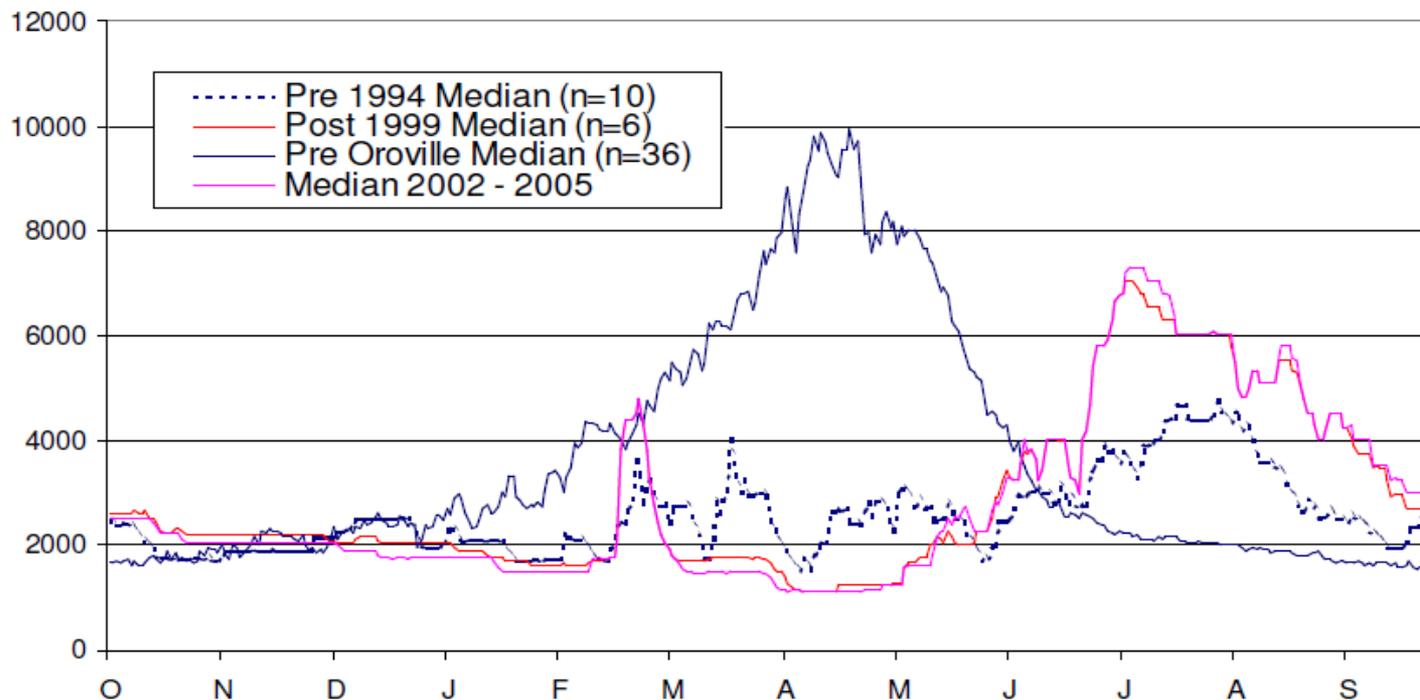


Lower San Joaquin River Average Monthly Flows
80-100th Percentile Water Year Type - Wet

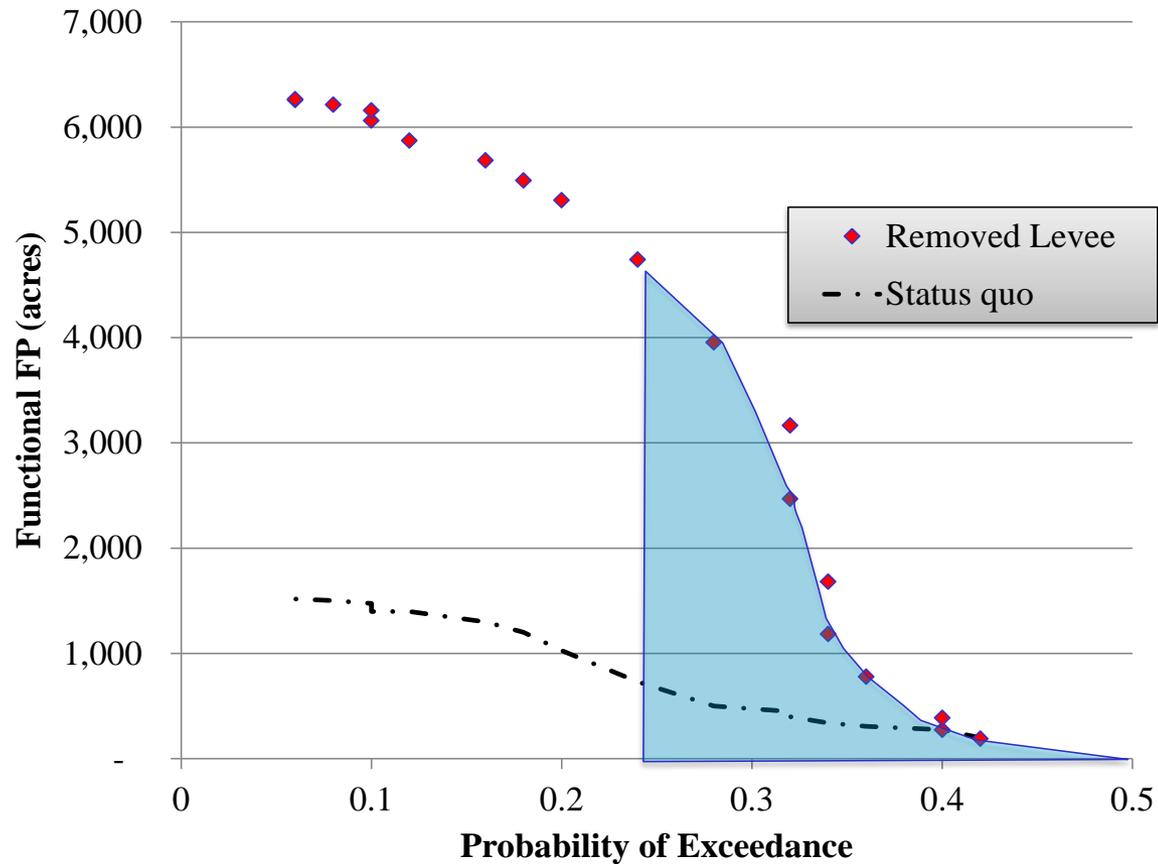


SWRCB Rules and Associated Water Operations Change Upstream Reservoir Management and Spring Floodplain Inundation Flows

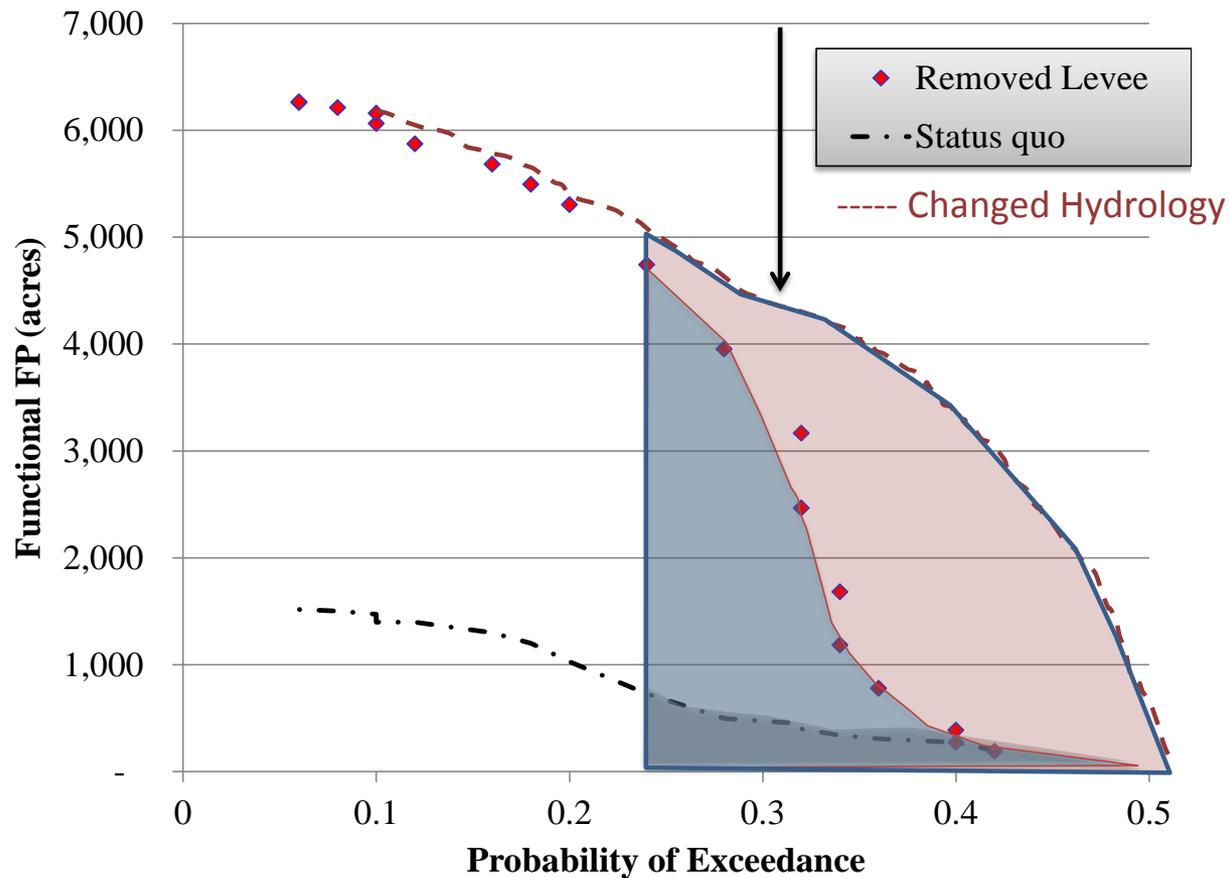
**Comparison of Feather River Flows below Oroville
before and after D-1641/CALFED ROD and before Oroville
(above normal, below normal, and dry year classes only)**



Floodplain Restoration Efforts under CVFPP and Water Management Decision under SWRCB should be Integrated Floodplain Restoration Efforts



Changes in Reservoir Releases will be Necessary to Increase the Frequency of Floodplain Inundation



Recommended Changes to the Program of Implementation

The following water quality objectives are currently, or may in the future be, implemented in whole or in part using water rights authority:

1. Delta Outflow
2. River Flows: Sacramento River at Rio Vista
 - **Floodplain inundation flows**
3. River Flows: San Joaquin River at Vernalis
4. Export Limits
5. Delta Cross Channel Gates Operation
6. Salinity
7. **Salmon Protection and Restoration**

Chapter IV. Program of Implementation (last paragraph)

Currently, the water right permits of the DWR and USBR include terms and conditions that define their responsibilities to implement the municipal and industrial, agricultural, and fish and wildlife objectives. ~~In the future, the State Water Board may amend this program of implementation, take action in a water right proceeding or proceedings to change the water right responsibilities of the DWR, the USBR, and other water right holders to implement these objectives, or take other actions that~~ implement the objectives. By [date certain within 5 years of completion of this plan], the State Water Board will complete water rights proceedings to change the water right responsibilities of DWR, USBR, and other water right holders tributary to the Delta as necessary and appropriate to implement these objectives.

A. Implementation Measures within State Water Board Authority (add new paragraph)

By [date within 5 years of completion of this plan], the State Water Board will complete water rights proceedings to modify the water right responsibilities of water right holders tributary to the Delta as necessary and appropriate to implement these objectives adopted in this Plan.

In these water right and water quality proceedings, as appropriate, the State Water Board will:

- a) Require reservoir operators to evaluate opportunities that could increase the frequency of floodplain inundation. These evaluations should consider how best to optimize reservoir releases with physical modifications to the channel and floodway to maximize the amount of inundated floodplain habitat associated with pulse flow releases from upstream reservoirs into the Delta.

A. Implementation Measures within State Water Board Authority (new paragraph cont.)

b) Require that, in developing the Bay Delta Conservation Plan (BDCP), DWR and USBR will evaluate alternatives that employ a proportionate unimpaired flow approach or otherwise mimic natural flow patterns for the purpose of increasing the frequency of floodplain inundation. In reviewing the BDCP upon submittal for amendment of appropriate water rights, the State Water Board will examine how BDCP will effect salmonid populations that enter the mainstem of the Sacramento River downstream of Fremont weir, and the Board will consider floodplain restoration measures on the Sacramento River downstream of Fremont weir to offset the impacts of the proposed new diversion intakes on these populations.

A. Implementation Measures within State Water Board Authority (new paragraph cont.)

- c) Modify water rights to provide for increased flows during the late winter and early spring on upstream rivers (particularly the Feather and San Joaquin) to increase the frequency of floodplain inundation.
- d) Modify water rights as appropriate to allow for the diversion of water onto floodplains, particularly in the Yolo Bypass.

Questions?



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